The JOURNAL *of* GEOGRAPHY

Copyright, 1934, The Journal of Geography

VOLUME XXXIII NOVEMBER, 1934 NUMBER 8

URUGUAY AND THE URUGUAYANS

BEN F. LEMERT
Duke University
Durham, N.C.

THE COUNTRY

Altho Uruguay is but slightly larger than the state of Missouri it has a shoreline facing navigable waters in excess of a distance of 500 miles. The shape of the country is roughly square, north-south and east-west cross-sections measuring approximately 300 miles each.

Topography. The southern two-thirds of Uruguay is mostly plains while the northern third consists of rounded hills and table lands, none of which exceed 2000 feet in elevation. The greater portion of the country is drained by the Rio Negro and its chief tributary, the Rio Yi. A north-south cross-section starting at Rivera, the northernmost boundary city, shows the topography for seventy miles consists of buttes or mesas such as constitute the outstanding surface feature of southern Brazil. These are remnants of the Brazilian Plateau which extends along the eastern side of Brazil and dies away in northern Uruguay.

On all sides these buttes loom like the stumps of mountains. Between the mesas lie broad valleys usually cultivated. The surfaces of the mesas are covered with grass and are devoted to grazing if the slopes are not too steep for the steers to climb. A view from a mesa out over the surrounding valleys discloses here and there an adobe hut thatched with grass and surrounded by patches of cultivated ground. A stream threads its way down the center of the valley, its banks lined with semi-tropical foliage. In some places there are swamps and now and then between the buttes one may catch a glimpse of the Central Railway of Uruguay as it winds thru the valleys seeking an opening to the south. The wild life among the tablelands is dense, patches of water between the mesas being

FIG. 1. Sketch map of Uruguay.

covered with ducks. Large, long-legged birds glide thru the air, their legs extending backward like rudders, while innumerable multicolored birds in the foliage along the streams fill the air with their shrill cries.

Southward the tablelands merge gradually into rounded hills, the streams meandering thru the lowlands. Larger swamps are encountered, often impassable to the stranger. Patches of cultivated land are missing, while here and there a clump of laurel trees denotes the presence of an estancia house, the home of the owner of the cattle which now dot the landscape.

The transition from the hill country to the plains is sudden as

one discovers if he journeys on foot southward thru the Valle Eden which is sixty miles north of the town of Rio Negro. Entering this valley on the north is similar to traveling between mesas except the valley is narrower and the walls steep but not so high. For eight or ten miles the trail leads thru dense foliage parallel to a rushing stream. The air is filled with the scent of flowers, the only sounds are those of running water, the birds and the insects. At the southern end of the valley a complete change occurs. Behind are the hills and broken country while in front as far as the eye can penetrate are rolling plains covered with grass and wild flowers, grazed by cattle and sheep and inhabited by a few men.

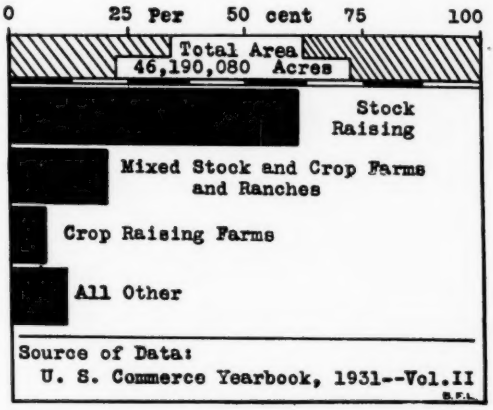


FIG. 2. Utilization of the land in Uruguay.

These plains are not like the monotonously flat lands of the Argentine pampa. From the Rio Negro to the La Plata, the plains, of Uruguay resemble the great swells of a calm ocean, always gradually rising toward the sky, always sinking into the trough. A traveler on foot may stand on a smooth crest of the land swells and look about for several miles across the tops of the waves of land. The occasional estancia house resembles a dark green island on a light green sea, a mass of green which is relieved by the profusion of wild flowers and the red and white of the cattle, and the grey of the sheep.

Altho the plains of Uruguay extend down to the sea, the impression upon the pedestrian is that they are continually rolling upwards like the ship on the ocean which seems always to be climbing up toward the horizon. El Cerro at Montevideo, rising from sea level to an elevation of 500 feet, stands out as a land mark inland like it does from the sea. From far inland it appears and disappears with regularity as one rises and sinks with the topography. Finally the crest of the hill remains in view, and while the pedestrian is really descending over the plains to the sea, he seems to be climbing up to the mountain which gave Montevideo its name.

Climate. While Uruguay's climate is something like that of South Carolina, it is subject to abrupt changes and frequent strong

winds of which the Pampero from the southwest is the most violent. North of the Rio Negro the summer sun is so hot the noon-day siesta is imperative. The nights are always cool to cold and the change from the heat of the day to the cold of the night is rapid. Almost immediately at the setting of the sun cold winds from the west blow across the country. The gaucho who sought protection from the sun at noon-day, now shivers in his poncho as he squats before his fire brewing yerbe mate. Later he rolls up in the poncho between sheep pelts to sleep while the cold wind blows over him the stars shine clear and cold in the sky as on an October night in Ohio, and the water in the cattle tracks may be covered with ice as late sometimes as November. The seasonal range of temperature resembles the diurnal range especially in the south. June, July, and August are never continuously cold months, yet snow falls often enough in Montevideo for the people to know what it is like, and cattle have frozen on the plains. The average rainfall, 43 inches annually, is fairly evenly distributed.

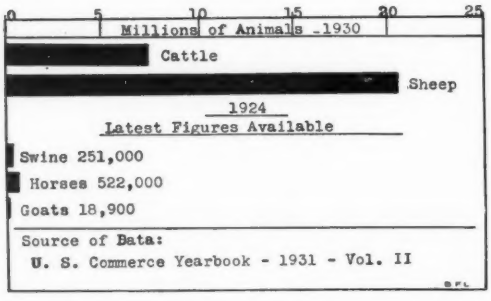


FIG. 3. The livestock industry in Uruguay. There are many mules grazing on the campo. These mules are rounded up when hauling is to be done—eight or ten to a cart, led by one horse. Oxen are quite common, usually pulling the large heavy, four-wheeled wagons.

Animal Life. Among Uruguay's native fauna, the armadillo is common. The iguana, a lizard which sometimes reaches a length of several feet is found in the north central areas where they crouch beneath the bunches of tall grass and scamper away like huge rats when disturbed. There are many snakes in the northern section, tho they are of slight danger unless stepped upon, or cornered. The rodent life of the plains is very active at night when as one walks along thru the grass he is struck by the continuous commotion about him.

The name Uruguay connotes "River of Birds" and is aptly applied to the country. Among the most noticeable are cuerbos and teru-teros. The cuerbo, a large black vulture, roosts upon the house tops in all northern towns and enjoys biting the legs of the unwary. The teru-tero, a variety of plover, is a source of continuous annoyance to one who walks over the plains. This bird, its body the size of a large pigeon, legs about a foot long, wings with a claw at the

joint, and a long, hooked beak, regards any pedestrian on the campo as its special prey. He is never without from two to a half dozen flying just above his head, darting down at his face, just missing him, always screaming teru-tero. They even wait for him behind a clump of grass if he stops to rest. Their eggs are about like those of a banty chicken, dark in color and pleasing to the taste.

Heron are plentiful, their long legs and wings and slim bodies resembling airplanes in flight. Partridges rise from the grass with shrill cries when disturbed, fly a few feet and again settle down to hide. One feels sorry for the ornero or oven birds when the railway employees knock their oven-like nests from the telegraph poles and litter the ground with their young. In northern Uruguay parakeets may be seen in large flocks, flying low, making no noise beyond the rustle of their wings, and appearing as a cloud of green moving along the green forest background near a stream. Ostriches are to be seen in herds in the central plains area. One may approach to within a few yards of these groups of great earthy-brown birds when suddenly one will turn in flight and the whole herd will go clumping off across the campo like a herd of horses.

FIG. 4. A wool caravan getting ready to leave the outskirts of Florida. Eight mules led by one horse hauled this load over practically roadless country for one hundred miles. The destination is Montevideo. The mules and horse cost very little for upkeep and the peon receives little cash wage. The system is cheaper than by rail if the railroad is also fifty miles from the estancia.

Plant Life. Uruguay's natural pasture is so profusely covered with brilliantly-colored flowers that the pedestrian often imagines he is tramping thru a flower garden. Laurel trees invariably surround the estancia house as a wind break and for shade; weeping willows line the streams, while every town has its paraiso trees with blooms resembling lilacs in color and fragrance. Tropical fruits grow in the north and temperate zone fruits and vegetables in the southern part of the country. Fruits and vegetables are shipped to Buenos Aires.

THE PEOPLE

Races. The Charrua Indians, among the fiercest in South America, prevented the Spaniards from gaining a foothold in Uruguay for over a century. Hoping to bring them into trading relations, Hernandarias, first colonial governor of the River Plate, sent 100 cattle and 100 horses and mares into the Uruguayan plains. The animals multiplied, but the Spaniards could not wait to trade, and were soon fighting the Indians for their possession. The charrua was never civilized but was finally exterminated about 1618.

The early settlers of Uruguay came chiefly from the Canary Islands and the Basque provinces of Spain. A people such as the Basques, noted for their obstinacy, independence and honesty, were transplanted from an environment in northern Spain which had had its influence in developing these characteristics, to an environment in South America which exemplified their original surroundings in even greater degree. In Uruguay they found a new country, stimulating climate, a region of greater possibilities than their homeland, but for every inch of which they had to fight an uncompromising foe. Uruguay has never become a melting pot of nationalities for the stream of immigrants has always passed the doors of a country known originally for the hostility of its aborigines, later for its continuous political disturbances, and because the tide of immigrants was attracted by the fame of the rich lands of Argentina and the glamour of that great city, Buenos Aires.

The Negro is the third racial element to be distinguished yet the influence of this race is slight. There were no plantations requiring slaves, the cattle country had little use for the black man, and continuous fighting may have kept his numbers down. Those that did survive have been amalgamated into the population. Present population statistics show 90 per cent white, mostly Spanish; 8 per cent negro, mostly in close proximity to the Brazilian border, and 2 per cent Indian.

Human Characteristics. The man of Uruguay impresses you with the fact he is an Oriental[1] or Uruguayano, not a Spaniard; that he has made this little republic an important country, and that it has moulded him as a distinct representative of its nationality. He is not like the Argentine who is a product of a mixture of many nationalities, quick, energetic, and given to boasting of his wealth and country. No street of Montevideo is set apart for a certain

[1] The territory east of the Uruguay River and north of the La Plata is termed La Banda Oriental, the eastern strip; its people the Orientales.

period each day that the people may come out and parade their wealth as is done in the Calle Florida in Buenos Aires, and along the Beira Mar in Rio de Janeiro. The Uruguayan's racial qualities do not produce ostentation. Even the word "manana" has a different meaning to him. In Argentina manana means a thing that will never be done; in Uruguay it means it will be done tomorrow. The Uruguayan may appear uninteresting to some, his methods may seem slow, but he is obstinately pursuing the working out of his

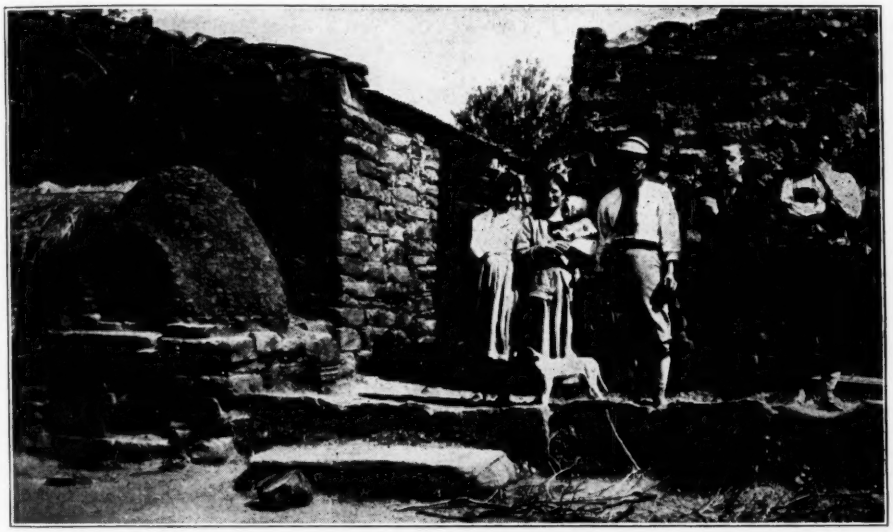


FIG. 5. Estancia buildings in northern Uruguay. Note the oven at the left. These are not necessary in central Uruguay for there few people eat bread.

principles. He is eminently respectable, even aristocratic. His word is his bond, and his honesty is assured for he will pay what he has contracted tho the fact the other party to the contract is the loser is that person's fault altogether.

The average Uruguayan is not a commercial man nor is he a speculator; his inherited qualities and his environment have made him a man of the land. He is a landlord and to the land he devotes his best attention. If railways are to be constructed, harbors built, banks managed, he pays a foreigner well to do the work knowing such improvements and financial management enhance the value of his holdings, that the servant gains the temporary advantage, but that the permanent increment is to the title holder.

Rural Life. Since the topography of Uruguay is one of rolling plains dotted with cattle and sheep, the rural life is an important

part of the geographic features. The estancia or ranch is the nucleus of the rural activity. In a region where trees are so scarce towns are named for them as is the town of Tres Arboles (three trees), situated in north central Uruguay, the tall laurels and eucalyptus which are always found around the estancia house emphasize its isolation. The main dwelling of the estancia is usually built in the form of a hollow square, three sides of which are occupied by the house, the fourth being a wall with an iron gate. The cocina or kitchen is located at an inner corner of the square. On one side is the long living room often with dirt floor and bare rafters beneath the tile or grass roof, while on the other side of the square are the sleeping quarters. The inclosed side of the square may be faced inwards with a roof forming a veranda under which seats are placed. The rest of the space inclosed is devoted to a garden or patio in which various flowers, a lemon tree or two and an orange tree are planted. A walk leads directly from the gate thru the patio to the veranda. The stranger coming up to the estancia which is usually located on high ground, should stop at the gate where he will be met by a peon who will consult his master or mistress before the stranger is admitted. If the visitor arrived on horseback he will have no trouble reaching the gate, but let him approach on foot and the procedure is entirely different. As a pedestrian on the plains he is a strange animal seldom seen. The teru-teros fly overhead and in front of him screaming their alarm over the countryside. A dozen large dogs which are part of every estancia awake from their sleep and race out to meet this strange creature with all the ferocity of a pack of wolves. The peon at the gate gazes placidly on the scene as the stranger fights his way thru the dogs which slink back snarling if the man on foot knows enough to swing his sombrero around at them and yell "Abajo perros, abajo!" Abajo perro means "down dog" and the dogs realize that at least this strange animal speaks their language. If the peon returns with the magic word "Pasa," the visitor enters the patio and the dogs henceforth pay no more attention for he is no longer a discordant element in the environment. If the stranger is a distinguished visitor he partakes of yerbe mate, meat and soup, black beans, and perhaps some hard bread known as "pan," with the padrone or master as his host. Afterward he is entertained in the patio, or if it is too cold, in the great living room and finally sleeps there while the family sleeps on the opposite side of the square.

If the visitor is unknown the peon says "Pasa," but himself

passes out the gate and around to an adobe hut or shed often with but three sides, and tells the stranger to make himself comfortable there. This process consists of sitting on a pile of hides and calmly making the best of it until some member of the family, either the padrone, an older son, or sometimes the padrona herself, comes out to talk. If the impression is favorable, one by one, a chair, a little table, a stove made from a Texas Oil Company can with some buffalo chips and faggots, are brought out. Later, about nine o'clock

FIG. 6. These people maintain a truck farm for the town of Rivera in northern Uruguary. The residence is in the rear, the clothes are their best and shortly afterward the young man, barefooted, guided me thru an extensive swamp.

in the evening, some meat and soup appear and the last gift for the night is a poncho. If the guest has not disturbed the family during the night, he is brought into the cocina in the morning and given breakfast of yerbe mate and a cup of coffee in which farina is mixed to the consistency of oatmeal. Hospitality is the unwritten law of the campo, but diminishes in enthusiasm and finally disappears entirely as a city is approached.

The buildings around the estancia consist of adobe huts in which the peons or laborers live, some of whom with their families are really a part of the estate. Their ancestors worked for the estanciero's ancestors and their children will continue where they leave off. There is usually a building for clipping and storing wool,

another for hides, the number and size of the buildings depending upon the size of the estancia.

Some of the larger estancias consist of more than 25,000 hectares with many thousands of cattle and sheep. Such an estancia surrounds a group of buildings which from a distance especially at night, when the Delco lighting plant is functioning, looks like a small town. The home of the estanciero is modern and often similar to any large frame dwelling in the United States. The overseer usually lives in a residence of Spanish architecture with its interior patio—a central room—tile floored, a fountain in the middle and a glass roof above. The outbuildings consist of a large mess-hall for the gauchos or cowboys, and a sort of storehouse for hides and pelts containing a large room in which the gauchos squat around the walls while their kettles of water boil on a central fireplace and the mate cup passes from hand to hand. The sheep shearing house is a long structure with shearing machinery operated by a gasoline engine, the sheep passing thru during shearing in an almost endless procession. Enclosures for breeding and sorting stock are also provided and the disinfecting trough, a long, cement-lined depression is usually nearby. The inoculation corral is a long narrow structure of parallel fences into which fifteen or sixteen cattle are driven at a time, small terrier dogs continually snapping at their heels to keep them apart. The gauchos round out a bunch of cattle from the main herd in the corral and deftly guide them into the narrow enclosure. The terriers which have been squatting back on their haunches solemnly eyeing the procedure, immediately dash forward and resume their snapping at the heels of the cattle while a veterinarian from Montevideo quickly proceeds from one bullock to another stabbing with his syringe just behind the right foreleg. When the bunch has been inoculated the bars at the front of the enclosure are dropped and the cattle rush out across the plain, their places immediately taken by the next group.

The large estancias are elaborate establishments with a wide assortment of buildings and from fifty to one hundred employees, but these are the high spots in the development of the stock industry in Uruguay. The average estancia consists of a few buildings aside from the main dwelling of the padrone, and the employees number under ten. In northern Uruguay may be found

ranchos which boast of but an adobe hut or two, all the work being done by the padrone and his wife and one or two sons or peons perhaps.

The estanciero of the large estate rarely lives upon his property, preferring his town house in Montevideo and using his residence in the country only upon his visits to the estate. His sons and daughters learn to manage the property, but are educated in Montevideo or sent abroad while he assures himself of efficient management of the estancia thru the employment of a high-salaried and well-trained overseer. This overseer is usually a Uruguayan, altho he may be Scotch, English, or even from the United States of North America.

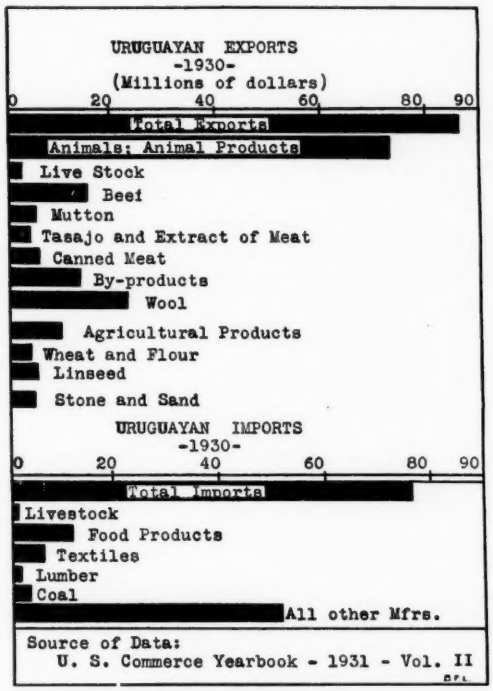


FIG. 7. The foreign trade of Uruguay.

The Uruguayan gaucho is in a class by himself. Of medium stature, swarthy, with piercing black eyes and straight black hair, he reminds one of his touch of Charrua ancestry more than of the Spanish. He is not like the American cowboy of the past or present. The gaucho rides his horse across the plains as tho he were a part of it, silent and dignified, a picturesque figure with his broad black flat-topped sombrero, a sash about his waist, great baggy trousers and low rawhide boots with long spurs. He does not need fancy leather trappings to protect his legs for this climate does not produce thorny vegetation. His appearance is set off somewhat by the useful poncho flapping from his shoulders, a protection in the wind and rain, a blanket in which he sleeps at night. His life consists of getting up at dawn, sucking a mug of yerbe mate thru a german-silver tube, and riding out to his cattle. Returning to the estancia house about 8 A.M., he finds a sheep freshly

killed, stretched over an open fire to roast. After eating his portion he drinks more mate and returns to his work. At noon he comes in for a meal of meat and soup and takes an hour's siesta. In the evening, at the end of the day's ride, the gauchos may be seen, their horses cantering across the plans to the estancia house where a tub of freshly killed and cooked beef is set before them. They squat upon their haunches Indian fashion. Each one, drawing a large cuchillo or knife from his sash, spaers a chunk of beef the size of his head and using the knife as his only tool, proceeds to devour the beef as only one who has spent a hard day in the open, can do. Occasionally a dog wanders by, the gaucho will pause long enough to strike the creature over the back with the flat of the knife and resume his eating. The meat is followed by a tub of the liquid in which it was cooked and this serves as the soup. The part left over in each pan is poured back into the main container, not because of effort at conservation, but perchance some one desires a second portion. If one has disposed of his chunk of meat, he may receive a second upon which teeth have already operated.

After the meal the gauchos adjourn to their cocina where the mate is sucked in the fashion of the American Indian peace pipe, one drawing a mouthful and passing the mug to the next. When it is empty it is only necessary to pour in some boiling water from the kettle over the fire and a fresh mugful almost as strong as the first, is ready. After the mate drinking the gauchos pull the sheep pelts from beneath their saddles, spread them out on the ground and roll up in their ponchos to sleep. The stars above disappear from their view as they close their eyes, and the bark of the fox, the hoot of an owl, mingled with the lowing of the cattle on the campo provide soft music to lull them into slumber.

Courtesy is the gaucho's natural attribute; he is in every respect the gentleman of the plains. If you are received by the padrone, the gauchos and peons treat you with the same native charm and dignity you have already perceived in the estanciero himself. I have seen this courtesy displayed by a lad of ten or twelve, a son of a poor estanciero who in the absence of his father and mother, placed a stool, poured some sour milk and set out a bowl of rice curry with far more courtesy and politeness than is ordinarily observed in American children in the best families. In the absence of his parents he was my host and gave me the best he had. The gaucho will even lend the stranger his poncho that he may not be kept awake by the cold, tho he does have to gently remove

it later to get some sleep himself. The honesty of these people is a noticeable characteristic. One may leave anything laying about and altho they will pick it up and examine it, they seem never to think of appropriating it. The strict laws of Artigas, that great soldier who ruled Uruguay with an iron hand, may have influenced these characteristics.

Altho the gaucho is rather extraordinary, he is not a perfect individual. Occasionally he imbibes too much of the fiery liquor at the village cafe. On such occasions he enjoys singing and dancing with the senoritas after which he mounts his horse and gallops wildly across the country waving a bottle of the same stuff that started his stampede. Finally tiring, he wraps up in his poncho and sleeps himself back to normal.

Urban Life. The Department of Montevideo with its chief city, Montevideo, is the only densely populated section of the country. In this department the suburban towns are relatively close together and all converge upon the capital city. For the rest of the country, its densest population prevails in a strip of towns and villages which extends from Maldonado on the Atlantic in southeastern Uruguay, along the coast of the La Plata and northward along the banks of the Uruguay River. About 900,000 of the country's 1,900,000 people live in this strip of country while the remainder of the inhabitants are spread over the campo on ranches and in villages and towns.

Montevideo, occupying a peninsular point of land on the La Plata estuary, may be compared in size with that of Cincinnati, Ohio, while its climate is similar to that of Charleston, South Carolina. Its streets, laid out in rectangular form, extend in three directions to the coast so that even on the warmest day the citizen always enjoys the effects of the cooling sea breezes. Numerous flower- and tree-decorated plazas break the monotony of the straight streets, while the Spanish architecture of the buildings around the plazas, with the arches and columns, presents a quaint and pleasing appearance. The business establishments are usually two or three stories, protected on the street level with the usual iron shutters and bars. The residences in the main part of the city front upon the sidewalks, their interiors secluded except for occasional glimpses of the patio one may get thru an open doorway.

The docks front on the River Plate. They consist of square basins of artificial construction. The piers are concrete and the loading machinery is modern. Electric cranes upon railways roll into place alongside the ship, their long arms reaching into the

holds for cargoes which are placed directly upon freight cars beneath the crane or deposited thru openings in the roofs of the adjacent warehouses.

To the west of Montevideo is El Cerro, the hill, or mountain as it appears from the city, surmounted by an ancient fortress capped with a pilot light which can be seen 30 miles at sea. To the east of the harbor is the Playa Gonzales Ramirez with its beautiful casino and park fronting on a wide sandy beach. Farther east along the coast is the pleasure resort of Pocitos. To these resorts come the pleasure-seekers of Buenos Aires making Montevideo the Atlantic City of this part of South America.

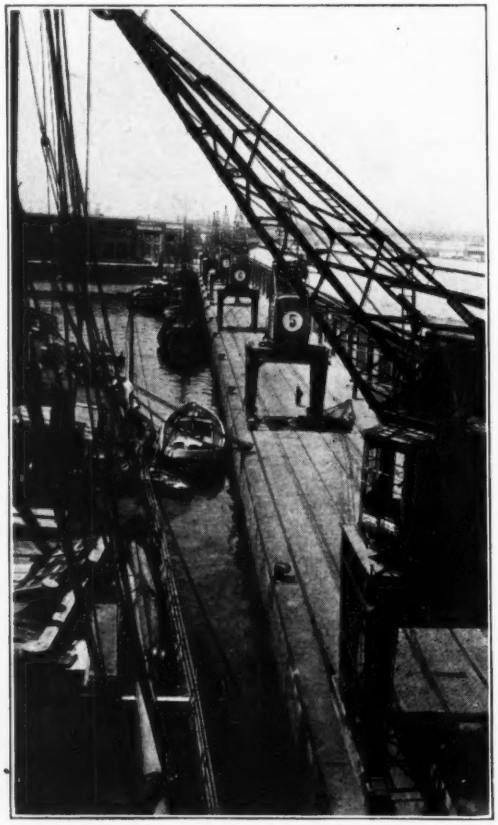


FIG. 8. Loading an American ship in the harbor at Montevideo.

Inland from the city the streets open upon the residences of the wealthy inhabitants. Here for several miles northeast, north and northwest the rich families have built their magnificent residences surrounded by extensive estates.

Montevideo is passed by many of South America's visitors from northern countries who are attracted by the greater size of Buenos Aires, but even the Argentine will advise one to visit it.

Montevideo is Uruguay's sole important city. Tho the strip of territory bordering its coasts contains the greatest density of population, the concentrations are small, the next largest city in the republic being Paysandu, a town of 20,000 inhabitants in west central Uruguay on the banks of the Uruguay River. The towns of the southeast coast are important chiefly as pleasure resorts and for small local industries, those on the banks of the Uruguay are centers

of the livestock industry, while the interior towns consist of groupings of tradesmen and laborers who supply the wants of the rural sections.

These towns in appearance, are very much alike, rectangular in plan, loosely tied suburbs, and the main thorofare bisected by the central plaza where the people gather in the evening to promenade and listen to the band concert in the pavilion. From the band concert they adjourn to the church which always fronts upon the plaza. Following the church services they go back to the plaza for more band concert.

The houses, like those of Montevideo, are built fronting on the sidewalk, close together and mostly one-story. The sidewalks are of paving stone, while the streets, if paved, are cobbled. The large towns have electric lights and a policeman on every corner. In northern Uruguay the town police are very numerous, their English constabulary uniforms contrasting with their surroundings. The people on the streets of the Uruguayan cities and towns are as well dressed as those in any American town and not much different in appearance. It is true they are not in as much hurry. Two friends may meet twenty times a day but they will shake hands and greet each other with equal cordiality each time. That is one way in which business relations are carried out.

The women of Uruguay, with whom I refer to those of the urban communities, for they are seldom seen in the campo, are more free and independent than in any other Latin American country. The senorita rides her horse or drives her car, the senora manages her estancia and will walk the streets at will without the necessity of a chaperon. In appearance they far surpass those of Argentina and Brazil. After seeing the Uruguayan women passing along the streets of Montevideo, their styles as modern as those of New York, their ivory complexions, their straight black hair and large blue-black eyes, the observer is able to appreciate the sentiments of Uruguay's soldiers who for a hundred years went into battle singing of their senoritas.

THE GEOGRAPHIC UNIT
(A Basis for Advanced Social Studies)

HELEN M. WHITE
Roosevelt High School
Washington, D.C.

Geography has long been regarded as a necessary part of the elementary school curriculum. Many of the leading colleges have introduced strong courses in the content matter of this subject, as well as in teaching methods. But the secondary school has not been so open-minded toward its value. Only in the commercial courses has geography found a place, and that sometimes only "grudgingly and of necessity." Its utilitarian value has evidently been the only criterion upon which it has been admitted to any course of study. It is usually required, and when elective, is confined to the work prescribed for commercial students. What further opportunity is offered to the ones who really enjoy it? History can offer several advanced courses, language is progressive, English is enlarging its scope, and science advances. The prescribed course of geography only appears to offer "ne plus ultra."

The thesis proposed here is that geography has just as much cultural value as any of the so-called academic studies. It can educate for leisure as well as for vocation. It can offer an opening to the understanding of human relationships and human understanding just as effectively as any of the subjects usually considered in the field of social studies. And without actually thrusting itself into this group where its claims are not yet fully admitted, or remaining wholly with the natural sciences where it began, and where many feel it should remain, it can hold a distinctive place in the cultural world by localizing the one, and humanizing the other. In other words the study of a geographic unit in all its aspects can draw on many fields of study, and for the advanced student serve to explain and clarify many things only partially understood, and enlarge the social as well as the natural world.

It is this idea that has led me to develop a series of lessons on the Mediterranean region using as a basis for my own study Miss Semple's last work, "Geography of the Mediterranean Region." Anyone who has had even a casual acquaintance with the work of this teacher of geography can not fail to be impressed with the cultural background of the author, and her joy in her subject. The high school student has only touched upon culture. However

courses in ancient and European history have been open to him; he has studied language; he may perhaps have had a course in commercial geography, in economics, or in biology. With such beginnings, an advanced course, the study of such a region as I have mentioned, can draw upon all of these, strengthen them, and perhaps show that the repetitions of history, as expressed in man's varied activities, and the evolution of society take place on a stage which varies less thru the years than the dramas played upon it, and that these dramas however different in their outward aspects have something in common, something as dominant as the theme of a symphony, as characteristic as the scarlet thread that identifies the ropes of the British navy. This is the geographic background, furnishing the board itself, the scenery and even the props for the play.

The material here presented is the general plan of the work, giving all of the problems, and the detail of the development of one of them. The Morrison Plan has been followed in the detailed outline.

THE MEDITERRANEAN REGION

I. The delimitation of the region.

Problem:—To find out why the Mediterranean basin may be studied as a region.

Development:—Survey in a broad way the characteristic climate factors found thruout the region, pointing out the Scythian plain and the Nile valley as exceptions that prove the rule. Show how the mountain and desert rim has served to make this basin an entity.

II. The physical features

Problem:—To learn how the physical features of the region have operated to form many small units in which civilization has been able to develop but not to stagnate, thereby influencing the whole.

Development:—Study the principal physical features emphazing the ancient plateau regions and the many younger mountain systems. Show how these have determined the various units of the region. Point out the more important plains, emphazing their value in supplying the food needs of the region. Make a study of the coastal lands emphasizing the difference the amount of irregularity has played in the development of peoples.

III. The climatic features

Problem:—To find out in more detail how the characteristic climate has been a determinant in the life of the region.

Development:—Study the winds that affect the region. Point out the differences in the drought areas of the east and west basins. Show how the winter rainfall has determined the distribution and types of cultivation. Show the relationship between river development and the climate of the various sub regions. Note the value of underground streams in supplying springs in many districts devoid of surface water.

IV. Vegetation

Problem:—To find out how the vegetation of the Mediterranean region reflects its physical and climatic background, and how both have been utilized or overcome in the development of agriculture.

Development:—Study the forested areas of the region, comparing the types of trees with those found elsewhere. Point out how the ancients exploited these regions, and the consequent condition now prevailing. Study the great grain districts and the changes or permanency of these regions. Show how the cultivators developed irrigation and dry farming methods. Discuss the characteristic planted crops and the development of the tree crops for the better utilization of the cultivated land. And finally show how the Mediterranean region has been a land of gardens, a place where beauty was not neglected because of difficulties.

V. Commerce

A. Problem:—To understand the importance of trade in the Mediterranean region in ancient and modern times.

Development:—Classify the chief products of exchange, noting the regions of exchange both ancient and modern. This classification to include minerals, animal products, grain and lumber, crops and manufactured articles.

B. Problem:—To understand the "intra-mural" routes, and how the trading spirit thus engendered found an outlet to the rest of the world.

Development:—Study the sea routes. Point out the importance of the islands, the irregular coast line and the division of the Mediterranean world into well defined units, each with a civilization that had something to offer and something to receive. Show how contacts could be made with the hinterland of the region thru the Rhone, the Carcassonne, the Carso Gap, the Morava-Vardar Furrow, and the Syrian passes as well as by the Nile Valley and the Black Sea. Explain how these regions thereby contributed to the development of the Mediterranean basin as a whole and not to the region of contact alone. Show how these contacts have expanded into the Modern Midi, Rhone-Rhine, Danubian and the Berlin-Bagdad routes thus restoring to the Mediterranean much of the importance its position in the ancient world afforded.

DEVELOPMENT OF ONE PROBLEM AS A TYPE

IV. VEGETATION. LESSON I. FORESTS

Problem:—To find out how the vegetation of the Mediterranean region reflects its physical and climatic background, and how both have been utilized or overcome in the development of agriculture.

Development:—Since the various topics developed under this subject are linked with one or more phases of the material presented in previous lessons, the pre-test for each topic will endeavor to utilize that which is most relevant to the subject under discussion. The presentation will follow the lines indicated by the sub-heading of each lesson.

I. Pre-test

A. Review major relief features
   1. Note trend of mountain ranges
   2. Larger plateau areas—Iberia and Anatolia
   3. Recall limestone structures in many localities

B. Review chief climatic features
   1. Effect of shifting wind belts
   2. Increasing aridity toward east and south
   3. High mountains as rain breeders
   4. Rain shadow. Contrasting regions

II. Presentation

A. Mediterranean forest types—development reflects water shortage in openness of stand and nature of growth.

1. High mountain forest—analogous to those of temperate lands, not abundant except on high northern and eastern barriers.
   a. Evergreens—firs, cedars, pines
   b. Deciduous—beech, chestnut, elm and oak
2. Lower slopes—xerophytic growth—the Maqui—the true Mediterranean forest, represented by laurel, myrtle, oleander, juniper, evergreen, oak, etc., characterized by
   a. Dwarfed growth—lower air strata
   b. Spire form—Cypress—little surface exposed to sun
   c. Special leaf development—shiny surface, hairs to prevent evaporation
3. Semi-desert regions—near desert forms—termed garigue, scattered, existing in poor and thin soil.
   Lavender, sage, broom and gorse, rock roses; Later introduction (America) prickly pear and agave

B. Distribution of timber regions

1. Mountain ranges—Caucasus, Amanus, Lebanon, Pyrenees, Ligurian Alps;—zonal distribution as elsewhere
2. Higher island peaks—Corsica, Cyprus and Sicily
3. Banks of perennial streams

C. Value to Mediterranean people

1. Lumber—ship timber (most important) building material, cabinet woods wine casks and fuel
2. Naval stores—resin, pitch
3. Medicinal purposes—oils, tar
4. Honey and wax
5. Wooded glades as sacred places (Grove of Daphne, Vale of Tempe)

D. Denudation of forest regions—noted even in ancient times—certain efforts at reforestation for local needs made.

1. Increase of population centers and consequent demands on nearer forests—particularly noticeable in the east
2. Dry summers and resinous character of maqui resulting in forest fires
3. Over-grazing on burned lands
4. Thin soil covering—due to lack of chemical and mechanical decomposition

III. Assimilation

A. Climate and types of vegetation

1. Geography of Mediterranean Region, Semple, 261-265
2. Mediterranean Lands, Newbigin, 38, 40, 43, 50
3. Old World Continents, Bodley & Thurston 129

B. Distribution of forests

1. Locate on map chief forested regions
2. Plot these regions on blank map
3. Using Semple list regions with trees found in each (this could be shown on map) or,
4. List trees and regions where each is found

C. Value to people of Mediterranean

1. Using Semple list various uses of forest products, trees supplying these needs, place of production, place of consumption

2. List and locate from various sources, forest regions or trees with religious significance—i.e., Grove of Daphne—Ben Hur

D. Denudation—find parallels in lands outside Mediterranean region similarly affected. Readings to show how forest policies have developed or are developing in many lands. Note the work of the conservation corps now in progress.
Reading: Our World To-day, Stull & Hatch, 196-199
1. Increase of population of Eastern U. S.—gradual decrease in New England and Lake forest regions, resulting in need for longer hauls. Plight of north China
2. Destruction in Appalachian districts, disastrous Miramichi fire
Incendiary fires in berry countries—Forest Patrol
3. Over grazing of national forests of western U. S.
4. Thin soil—any local region or even a garden attempted under such conditions illustrates the difficulties encountered by plant growth

E. Special readings
1. Geographic Magazine—if available—using indexes consult articles on Mediterranean lands giving special attention to references to forest and forest products—ancient and modern
2. The Bible—using a concordance and dictionary search out references to forests or trees, and special uses to wood as in the building of the ark, the tabernacle and the temple
3. The Odyssey—Palmer translation—search out passages using figures of speech having trees or forest regions as their basis

IV. Organization

A. Each pupil to produce a well annotated outline of material presented under its four major headings

B. Each pupil to produce well organized notes on his special reading

V. Recitation

A. Each phase of subject to be presented by one pupil

B. One pupil to present complete subject in brief

C. One pupil to present each special reading assignment

D. Other pupils to present in written form result of special readings, under such subjects as the following: (1) The Trees of the Bible; (2) Homer's knowledge of forests; (3) Report of any Geographic Magazine article read

GEOGRAPHY LABORATORY WORK IN THE TEACHERS COLLEGE

J. SULLIVAN GIBSON
Research Student, Clark University

That laboratory work is beneficial and to a certain extent essential to efficient instruction is no more true of the physical sciences than of the science of geography. For some time the leading college and university departments of geography have recognized the value of laboratory work in physical geography courses. Many departments give courses in physiography and geography involving four or six hours of laboratory work a week and carrying full science credit, while some do an equal amount of laboratory work in courses in weather and climate. In some departments, courses in economic and regional geography embrace considerable map, graf, and other types of work that might well be rated as laboratory procedure. Such courses as these, however, as a rule do not enroll large classes, and therefore, serve only a small percentage of the student enrollment. The merit of such work is so widely recognized as to render its discussion unnecessary here. My purpose in this paper is to deal with laboratory work in only those courses that enroll the greater mass of students in geography departments of the teachers colleges.

The impetus recently given to geography in some states by the requirement of one or more courses for teachers certificates has greatly enlarged the enrollment in elementary courses. Relatively few departments, especially in the teacher training colleges, give supervised laboratory work in those courses enrolling the greater mass of geography students. By far the greater number of prospective teachers take only the one generalized elementary course designed for meeting the certification requirements and never enter the specialized courses where laboratory work is required. Most of the teachers of our common schools, therefore, are certificated to teach without having had any geography course involving supervised laboratory work.

Since geography is almost completely lacking in the high school curriculum, the elementary course designed for the student beginning work in college geography must assume the responsibility of bridging the gap between the grade school and the junior, or even the senior college levels. For practically all students at least four

years without any geography elapse between the grade school and college courses; for older students in the class the period runs much higher, frequently to a score or more years. The average prospective teacher enters one of these classes weak not only in knowledge of geographic facts and philosophy but in knowledge of and ability to use the physical equipment essential to efficient teaching. The geography laboratory, if properly organized and managed, offers the very best opportunities for fixing fundamental, basic facts by doing things one's self, and equally good opportunities for acquiring the ability to interpret and use tools necessary in understanding the science and teaching it to others.

The place for a geography department to build a substantial foundation is in the elementary course; for not only does the future work of students in the department depend upon the foundation laid in that course, but to a great extent the future of geography in the common schools rests upon teachers whose geography training is limited to the work of that one course. Most students in teachers colleges enter geography courses for the purpose of satisfying certification requirements. Altho most prospective teachers expect to teach geography at some level, relatively few elect courses beyond those required for certification. The elementary course, therefore, offers practically the only opportunity for the college department to extend any significant influence into the common schools of the land. Since the progress of geography depends upon the training, attitude, and initiative of teachers in the common schools, it is imperative that instructors in teacher training departments concentrate their efforts to prepare and send out teachers well grounded in geography. Every college department, therefore, should purpose to give the very strongest instruction possible in the elementary courses designed for the prospective teacher. Of all courses offered, this one certainly warrants most good supplementary guidance and supervision.

For laboratory work to be most efficient it should correlate closely with the work done in the class recitation. In courses carrying laboratory work, too frequently there is a conspicuous lack of correlation; this condition results in a general confusion of subject matter and a loss of respect for the laboratory. The work exercises should be planned and arranged so as to follow strictly the outline of the course. If a workbook or laboratory manual is used it should be followed in a way that will insure close correlation with the course outline. There are several good textbooks, including

"Principles of Human Geography" by Huntington and Cushing, "New College Geography" by Peattie, "Environmental Basis of Social Geography" by Huntington and Carlson, and others, any one of which might serve well as a basic text in such a course. But the student who has gone thru four years of high school, and possibly spent several years teaching since studying geography in the grades, needs to go far beyond the limits of a single textbook; he needs to read widely from a number of good writers in the field. The laboratory exercises, tho they might follow the general organization of the designated textbook, should seek also to correlate with the library and other materials covered outside the text, and should be organized with this in view. It becomes desirable, then, for each course to have its own laboratory exercises especially designed, if best results are obtained. This can be accomplished effectively by the wide-awake teacher who will work *with* rather than *against* the local situation in an effort to conserve time, space, and money.

The nature, scope, and amount of laboratory work done in an elementary college course must be determined in a large part by the time allotted to such work. Probably the ideal situation would be to allow four or six hours a week for laboratory work with three hours for lecture and regular recitation. One can not expect such a liberal time allowance, however, for very few college deans look favorably on laboratory work in the "Social Sciences" as geography is classified in some institutions. It apparently is not desirable to place such a course on a par with chemistry and physics in so far as time allotment is concerned. In some states, as is the case in Kentucky, certain designated boards and councils determine the number of hours of credit and the specific courses that satisfy requirements for certification. Therefore, it is not for the geography instructors or even the individual college to extend credit allowance to a course such as would warrant full laboratory work, as given in the natural science courses. Nevertheless, it seems quite feasible to use part of the time allotted to recitation for supervised work; and often administrators will look favorably on a requirement of one or two additional hours a week for laboratory work without giving additional credit for the course.

The financial problem of equipping and operating a geography laboratory is one of considerable consequence, especially in depressing times like the present. I do not propose in this paper a detailed plan by which geography departments can meet this expense. But I will suggest here that by buying conservatively and

by using advanced students as laboratory assistants, a department can finance an efficient laboratory course from a fee of one or two dollars collected from each student enrolled.

A geography course designed to meet the needs of teachers in the common schools becomes defeated in its purpose if it does not give to those prospective teachers the ability to interpret and use geographic tools. Teachers of geography need to handle maps and globes; they even need to know some of the common rocks and minerals and to see and handle some of the products of industry. To appreciate and interpret maps, grafs, and charts they need to make them right in the departmental work shop. To read the daily weather map they should see the weather instruments as they function continuously to give the records from which the map is made. Charles W. Elliot said: "The very best kind of education is obtained in doing things one's self under competent direction and with good guidance." This I believe certainly to be true with geography, and a laboratory with equipment and supervision necessary to give proper guidance to prospective teachers is within reach of the well equipped department of the teacher training schools.

In many teachers colleges a generalized course in human geography is recommended, if not required, of prospective teachers. Such a course resolves itself into a study of relationships. The geography laboratory offers a splendid opportunity for students to discover, analyze, and appraise relationships between man and his physical environment as expressed in terms of such cultural phenomena as are accurately shown by maps and grafs. The student readily sees and appreciates the relation of road pattern to relief when taught to interpret a topographic map. He understands some of the problems of drainage when given a quadrangle of a part of the lower Mississippi flood plain to examine; he can account for the high potential water power of a glaciated region after studying a contour map of the lake-strewn Vergas area. The student grasps a fuller appreciation for the relation of the Indian rice farmer to the summer monsoon winds when he constructs a rainfall curve for some station in the heart of the rice region. He sees the significance of the American corn crop when he makes a dot map to show its distribution over our country.

While the student is extending his sphere of knowledge and appreciation thru laboratory work the wide-awake laboratory instructor, with ingenuity and foresight, has a splendid opportunity to prepare his students for facing their future pedagogical problems

by acquainting them with materials and equipment which will prove helpful in teaching. The student learns of the great potentialities of the inexpensive, easily obtained topographic map; he learns the demerits of the Mercator projection and the fine points of Goode's Homolosine. He learns a way to lead his students out of abstract into concrete, quantitative thinking by use of isopleth and dot maps, rainfall curves, and other kinds of grafs. The grade teacher can instruct her class in longitude and time much more effectively after having developed laboratory exercises in that subject in a college geography course. She presents a much more forceful lesson on the seasons after working thru a laboratory exercise on sun behavior. She can lead her students into a better appreciation of tropical peoples after constructing climatic grafs for selected tropical stations. She plans and directs more effective field trips for her classes if she learns in the laboratory to interpret a map of a local area. In short, the laboratory does not only lead to an increased store of geographic, factual knowledge, and a keener ability to use such knowledge in interpreting geographic principles and relationships, but it also gives, in a more effective way than other types of group instruction, an acquaintance and familiarity with methods and tools essential to good geography teaching.

One two-hour period of supervised laboratory work a week, or even a period of one hour, if properly directed, greatly enhances an elementary course in college geography. For a class meeting three times a week for recitation this gives an opportunity to supplement much of the material covered in class with valuable laboratory work. In eighteen weekly periods students adjust themselves to workroom routine, and learn to work systematically and efficiently to the end of accomplishing as much or more of geographic worth as an equal amount of time would yield if spent in any other method of procedure.

The topographic map is one of the best materials for laboratory work, and might well form a basis for at least one-half the work of the eighteen periods in a generalized elementary course. For conservation in time and expense the teacher must select these maps cautiously and conservatively. For elementary students the instructor should avoid the use of complicated maps that do not lend themselves to easy identification and interpretation.

In the division of work devoted to climate the daily weather map is interesting and helpful in laboratory procedure, while Bulletin W of the U. S. Weather Bureau (now being revised) is an essential

source of statistical information, a copy of which every geography department should have. If finances permit, investments in weather instruments yield a profitable return. Considerable work in construction of temperature and rainfall grafs produce invaluable results.

Construction of maps other than the rather simple kind must be restricted in a course of only eighteen working hours.

Most elementary textbooks lend themselves to easy and satisfactory laboratory supplementation, and the enthusiastic teacher needs to find no alibi in the lack of a laboratory manual.

THE COLUMBIA BASIN PROJECT: WHAT IT IS

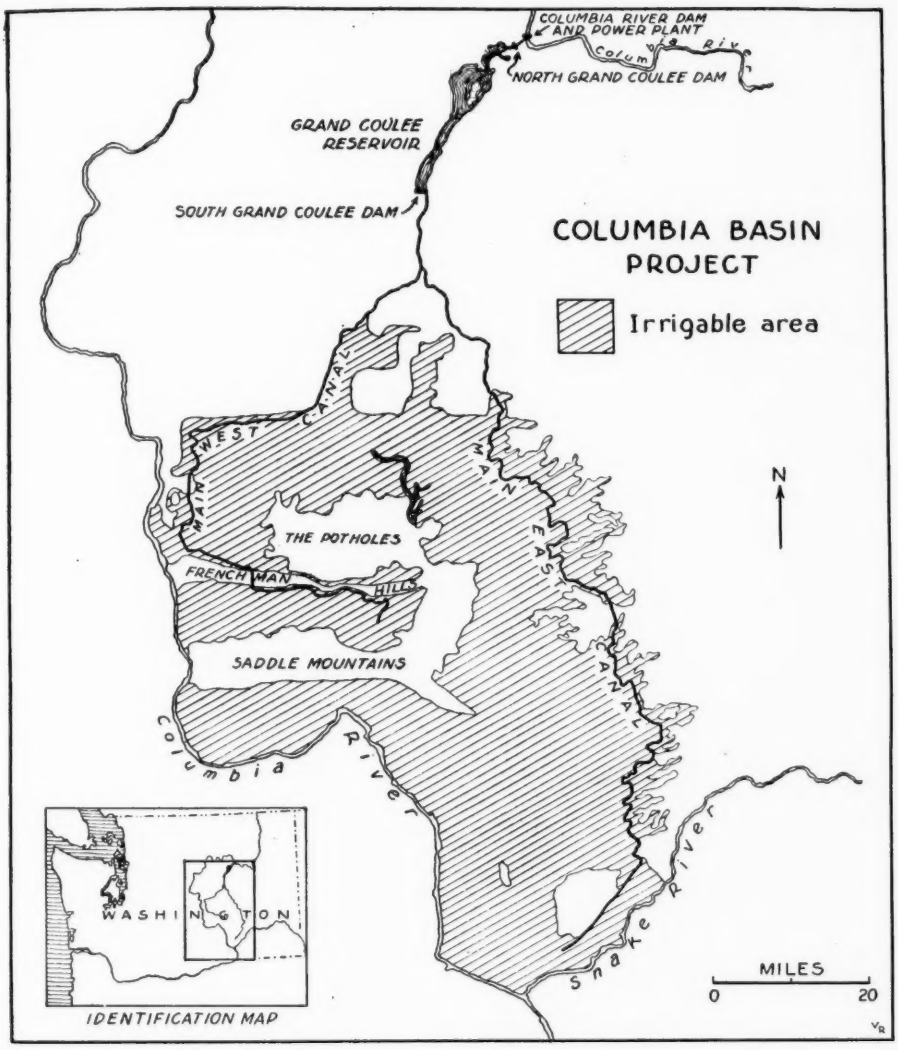
VICTOR ROTERUS
State College of Washington
Pullman, Washington

Imagine superimposed on a virtual desert a power unit equal in capacity to the present installation at Niagara, a reach of water about 50 miles by 37, and as the cost of this piece of imagination a greater total expenditure of money than that which built the Panama Canal—and you have in its gargantuan essence the Columbia Basin Project when it is realized.

This project, the cherished dream of a large group of staunch Washington state supporters, is finally starting on the road to reality with a $15,000,000 allocation (November, 1933) from the Public Works Administration. But the complete reality is still at least a generation away.

What is the Columbia Basin Project, and how is it to be developed? By far the largest combined irrigation-power project yet conceived in the United States, it deserves illumination.

The irrigational aspect of the project includes the eventual application of water on 1,200,000 acres of land adjacent to and east of the Columbia river and north of the Snake river in Washington (see map). All this land, in the rain shadow of the Cascades, receives less than 10 inches annual precipitation, and is at present mostly a sagebrush desert. The eastern margin of the estimated irrigable area coincides roughly with the 1400-foot contour line. The down-slope is southwestward until near the Columbia the eleva-



tion is less than 500 feet. A three-fingered area with the fingers pointing westward is rendered non-irrigable by topography and soil. The northern finger has a worthless drifting dunesand soil aggravated by the presence of "potholes," shallow elliptical basins from one to a hundred acres in extent. The middle finger is the Frenchman Hills, generally above 1500 feet in elevation; and the southern finger, the Saddle Mountains, generally above 2000 feet.

The water for irrigating this land will be pumped from the Columbia river at a point north of the project. This involves the building of a reservoir dam in the Columbia which will back water

in an artificial lake extending 151 miles to the Canadian border. Then it is intended to pump the water from the Columbia river reservoir thru large discharge pipes to the Grand Coulee Canal which leads 1.7 miles to the Grand Coulee Lake. The basalt walls of Grand Coulee have been ground down by glacial action from 400 to 600 feet in depth. The bed of this huge channel is 600 feet above the low water stage of the Columbia. By building dams at either end the site will be utilized to create another artificial lake about 23 miles long. From the south end of the Grand Coulee reservoir the water will be conducted thru concrete lined canals and tunnels, steel pipe siphons to the lateral distribution system evolving from a main east and a main west canal. This will make possible irrigation for 981,000 acres of land. By repumping the water to areas lying 100 feet above the canals an additional 219,000 acres will be irrigated, making the total irrigable area 1,200,000 acres. The extent of this area must be provisional due to the lack of detailed soil and topographic surveys for the region as yet. The irrigational aspect of the project, exclusive of the river dam, is estimated to cost $208,265,000 without interest or an acre cost of $173.55.[1]

The ultimate power development includes the construction of the river dam and a power plant. The dam will be about 430 feet in overall height above bed rock with a maximum power head of 355 feet at low water. The 151 mile artificial lake will impound 5,028,000 acre-feet of water. The fact that the head waters of the Columbia are fed by glaciers, snows and numerous mountain lakes (principally the Arrow Lakes, Flathead, Pend O'Reille and Couer d'Alene) make stream flow for power remarkably consistent. The installed power of the plant will be 15 units of 105,000 kilowatts capacity each, or a total plant capacity of 1,575,000 kilowatts which is 2,100,000 horsepower. The magnitude of this is revealed when it is considered that Boulder Dam's estimated capacity of 1,200,000 horsepower is about 60 per cent of that of the Columbia power project. The power feature including the dam is estimated to cost $185,890,000 with interest at four per cent. The estimated cost of the entire power-irrigation project then totals $394,155,000.

The above outlines the physical structure of the project. How is it to be brought into being?

The first, and for at least ten years the only, development will be the river dam and power plant. At present it is planned to build

[1] *Report of the Chief Engineer of the Reclamation Service to the Commissioner of Reclamation*, Department of the Interior, January 7, 1932.

at first a low dam which will raise the water 150 feet above the low water stage. The next development will be the high dam contemplated in the comprehensive project. After the construction of the high dam and power plant, the pumping plant and Grand Coulee Reservoir will be built; and finally the works to irrigate 1,200,000 acres.

The development of the reclamation aspects of the project will be delayed until conditions warrant the development. It is recognized that irrigation cannot carry the costs of the project. Contrary to the general rule that the more rapidly an irrigation project is settled the better the project is as a financial enterprise, in this case the reverse is held true. The intention is to apply power revenues not only to the cost of the dam and power plant but for one-half the cost of irrigation. The market, it is estimated, will require 15 years to absorb the power after the completion of the power aspect of the project. Hence surplus power revenues for the development of the reclamation aspect of the project will not be available, it is thought, until at least 25 years after the dam construction has begun. Even then the reclamation will proceed in units not more than 25,000 acres annually. The total 1,200,000 acres will accordingly not be developed until more than 60 years after initial construction work has begun on the dam.

The dream-picture of the complete Columbia Basin Project has been evolving for several decades. Its eventual translation into reality involves even a greater expanse of time.

SOME RECENT OBSERVATION IN HUMAN ADJUSTMENTS TO NATURAL ENVIRONMENT IN A GOVERNMENT SURVEY PROJECT

FRANCES RUSS
Ansonia, Ohio

During January 1934, the United States Department of Agriculture, Bureau of Home Economics and Extension Service under the Civil Works Administration conducted a survey of Farm Housing Conditions in three hundred counties in the United States. The purpose of this survey was to gather information regarding the amount of repair and improvement needed on the farm houses. The three hundred counties were chosen from different parts of the United States in order to give as representative a picture as possible of the existing conditions. Darke County in the Corn Belt was one of the nine divisions selected for the survey in Ohio.

As one of the eleven field workers in Darke County, I was first assigned to survey Allen township, a section where much poverty exists. This division belongs to what is known topographically as the Mississinewa Moraine, while, locally, the soil is termed "sad clay." The dilapidated condition of the farm houses, the general aspect of deterioration and the suspicious attitude of the people—all these reflected to some extent the poor quality of the soil. Of the eighty-nine houses surveyed, only one had electric lights, a furnace and a bath, and this house was on a farm of river bottom soil. The other eighty-eight houses were universally in need of paint, extensive repair, and of the comforts considered essential in an urban community, i.e., of heating, lighting and water systems. Several of these houses were log and in the last stages of their long careers. One log house, within only two miles of the modern one on river bottom soil, was in a deplorable condition and almost unbelievably inhabitable. The porch floor sagged to the ground with every step, light could be seen thru the crevices in the walls, and the kitchen stove slanted at a precarious angle. The barn and the few other buildings were in as decrepit a condition as the house. And the interior of the home confirmed the aspect of decadency, as did also the suspicious attitude of the occupants; these latter answered the questionnaire with reluctance, frequently forcing a rewording of questions and then giving, at best, indirect answers.

An outstanding example of the suspicious attitude prevailing

in Allen township was a more or less amusing one. A brighteyed little woman, wearing a World War army coat, admitted me to a bare, cold kitchen. The woman constantly interrupted the interview with profuse apologies for the desolate room and with pessimistic observations on everything in general and on the world's economic condition in particular. However, by dint of much patient pursuit, I finally completed the questionnaire save for two minor points. When the husband entered, I asked him to supply the missing information. This was too much for the long harassed farmer. He informed me that he was capable of managing his own affairs, that he had taught in high school and had practiced criminal law for eight years in Quebec, Canada, so there was nothing wrong with his mind even tho he had been made practically deaf by a log falling on his head. He advised me to read the laws of Quebec to learn how that government managed its affairs. He did not believe in the N.R.A., the C.W.A. or any of the other A's, so he refused emphatically to answer the questions. Since he had been punctuating his remarks with the questionnaire, I was indeed relieved when he handed the piece of paper back intact. I made my exit as quickly and as gracefully as possible, feeling that much might be forgiven people in the distressing circumstances under which these lived. They had only a small laundry stove for heat, the floors were without cover, the windows were curtainless, the walls had no paper, and two chairs supplemented by store boxes supplied the only seating facilities.

My next assignment was in Brown township which has reclaimed swamp land for a large share of its soil. There was a decided contrast between the farm homes on Allen township "sad clay" soil and the farm homes on this rich black soil. Many of the houses in Brown township have electric lights and furnaces. And on some days I would find every house surveyed having electricity. Bathrooms were in a minority, however, but many were the people who expressed intentions of installing water systems as soon as finances would permit. While there was obvious need of repair and of paint on the Brown township homes, they were not suffering from the neglect of years and of tens of years, but, rather, from the neglect of the last few years of economic adversity. The Brown township people responded much more graciously to my approach and questioning than did those who resided on the poorer soil, the former aiding me to complete the questionnaire satisfactorily.

To the eye, there is little difference in the surface of the two

townships—Allen township has the more undulating land. Brown township is traversed by a main east-west railroad line, while Allen has only a north-south branch line. In seeking for explanations of contrasting attitudes and living conditions in these two townships, then, one might add to the slight differences in surface and accessibility the probable significance of considerable differences in human make-up. However, there certainly appears to be a correlation between the soil types and the social and economic status of the people in the two areas.

ANOTHER LESSON

MARY C. MELLYN
Boston, Mass.

The world was luminous in the July sunset, as the train moved slowly up the last grade towards Rangeley. The topaz lakes, glistening in the setting sun, reflected the black pine covered hills. Here and there an outstanding peak shone with an indescribable radiance as it caught and held the sun's last beams. The old lady, in the chair in front of me, turned to face the passing glory, and, in a gentle voice, said, most reverently, "I have loved, O Lord, the beauty of Thy house."

That night, we sat on the borders of the long lake, where fourteen miles of shimmering, moonlit waters, shut in on each side by tall straight pines, made a picture never to be forgotten. I thought of the lesson I had learned that afternoon, and I, too, said, "I have loved, O Lord, the beauty of Thy House."

Yes, we have loved the beauty, but have we ever taught our pupils to love it? We have taught geology, meteorology, physiography, commercial geography; we have taught the wonder, the wealth and power of this earth, and what it has done for man, but where, oh, where have we taught our pupils an appreciation of its beauty?

You will ask—"Where can we find this beauty in the city, and the crowded sections, where some of us teach?"

Well, first, we must possess the seeing eye and the ear attuned, and the mind that is touched with the beauty about us; we must have the gift of the old Scotchman who walked up the hillside each day, "to take off his cap to the beauty of the world!"

This art of seeing and this attitude of appreciation are gifts—gifts which the schools may well develop, but which cannot be developed until the teacher has within herself a full measure of appreciation.

You, who teach in the suburbs, with fields and hills and sea and sky, you may easily teach the "beauty of the world." What is there for those of us who work in the city with its crowded sections and canyoned streets?

There is a promise of the spring in the maple and poplar trees on the city streets, and in the parks. There is the glory and wealth of the summer as spring marches toward vacation days, and we take into our class room the flowers of these months. There is the fulfillment of the autumn in the glowing crimson and the gold of the trees, the colors in the ripening fruits; and then there is the beauty in the peace and silence of the winter. This is Nature Study, you may say. It is also geography since the promise of the spring leaping into the glory of the summer, the fulfillment of the autumn and the brooding silence of the winter are due to the geographical force which is most essential to man's life—the sun, at the heart of the universe.

What more does the city give us? The great sky with its myriad pictures, "thick inlaid with patines of bright gold," in the long dark nights; "the cup of the crescent moon," the broad bands of sunset colors; and the trees lovely in their winter distinction as "they look at God all day." Or, you have had the experience that has been mine so often. Day after day, you leave your work in the early winter darkness. Suddenly and unexpectantly, an afternoon comes when you step out into a world of light and color. Beacon Street is aglow, the West is banded with beautiful colors, the Charles partly ice-coated reflects the sky, the buildings in Cambridge are beautifully soft in a rose-colored haze, and you know, as you salute the "beauty of the world," that a new life is coming with another spring just ahead of you. If you can find this beauty, you can give it to your pupils and they, too, may say with Henry D. Thoreau,

> I am not so poor. I can smell the ripening apples; the very rills are deep: the flowers feed my spirit, endear the earth to me, make me value myself and rejoice. I thank you, God!

Perhaps it is the poet that is sensitive to beauty—the inarticulate poet that is in the soul of each of us. Well, let us find in the poets, who can sing, fitting expression for all this beauty. I commend to the teachers of geography, as an avocation, the search for bits of

literature that will give expression to the "beauty of the world."

Sometimes you find it in an essay, sometimes it is a bit of description in the latest bit of fiction; sometimes it is in an exquisite poem, but you will find it if you look for it. Treasure it, and give it to your pupils to treasure, for

> Better than the minting
> Of a gold crowned king
> Is the safe kept memory
> Of a lovely thing.

The mind, filled with beauty and love of beauty, cannot find place for the banalities that make up much of the reading material of today. As the teacher of literature looks for the magic words which give color and light and music to her work, so do you supplement your work by finding in other bits of literature the same verbal magic which will keep before your pupils the loveliness of the world.

Let me tell you of some experiences which I would share with my pupils. An autumn afternoon—the lapping of the sea on the nearby shore; the water crisp and cool; white caps dancing in the warm afternoon sun. To the west the woods, a tapestry of beautiful colors hung against the sky, the red and gold of the maples with the somber tones of the pines; and the lines of Bliss Carman tell you,

> The scarlet of the maples can shake me
> Like the cry
> Of bugles going by.

Again, a little river, under the rickety old bridge, now following along with you, again disappearing behind the hills, greeting you once more, as you make a turn. You stop to listen as it trickles over the stones—you see the pendulous birches bending low, gleaming against the dark woods of the banks, and you turn from this friendly little stream of New England and go home to read again Van Dyke's "Little Rivers." Because you teach Geography this paragraph especially appeals to you:

> The torrents of Norway leap down from their mountain home with plentiful cataracts, and run brief but glorious races to the sea. The streams of England move smoothly through green fields, and beside ancient, sleepy towns. The Scotch rivers brawl through the open moorland and flash along sleepy Highland glens. The rivers of the Alps are born in icy caves from which they issue forth with furious troubled waters, but when their anger has been appeased in the slumber of some blue lake, they flow down more

softly to see the vineyards of France and Italy, the gray castles of Germany, the verdant meadows of Holland.

And does not this help you as you picture the rivers of Europe in your geography lessons?

Once more, a Saturday afternoon in June—a midsummer stillness; the waters of the Sound a mirror, reflecting the cloudless sky—no movement, no sound save the beat of the seagull's wings; then—a faint ripple on the surface, the grasses on the shore bend. Let Conrad tell in his matchless way, what happened.

A sigh under the flaming blue, a shiver of the sleeping sea, a cool breath as if a door had been swung upon the frozen spaces of the universe, and with a stir of leaves, with the nod of boughs, with the tremble of slender branches, the sea breeze struck the coast.

A phrase, a sentence, a paragraph gives you a new possession for your pupils, and remains as a real treasure when much that was laboriously taught has been forgotten. Has it not been true in your experience?

Geography may leave its residium of facts and principles in the pupils' minds. Why may it not leave, too, the appreciation of a beautiful world filled with gifts to satisfy man's soul as well as his body? Some day we shall learn that "man does not live by bread alone!" So build appreciations for your pupils.

These appreciations and attitudes will remain when geography is forgotten: they will give grace and distinction to the mind as they transform knowledge into culture: they will lift the individual above the commonplace, giving him new fields of enjoyment for his leisure.

So I plead for "Another Lesson";—a lesson given frequently; a lesson which means that you share with your pupils some new appreciations of the "beauty of the world." Then may we say with Browning—

You've seen the world,
The beauty, and the wonder and the power
The shapes of things, their colors, lights and shades,
Changes, surprises,—and God made it all!
Do you feel thankful,—ay or no,—
For this fair town's face, yonder river's line
The mountain round it, and the sky above?

AN INTEREST STIMULATING DEVICE

The following device was used successfully with the four upper elementary grades. Its flexibility renders it equally applicable to a variety of map uses, such as drill on place location, use of latitude and longitude, natural resources of countries, chief industries, or a combination of these.

To arouse greater interest the group is divided into teams, either arbitrarily by the teacher or, better still, have captains choose. The name of each team is placed on the blackboard so that scores may be recorded beneath them. Each pupil is provided with a map, care being taken to have all maps alike. The textbook map is the best for this purpose.

Two methods may be employed to provide drill with latitude and longitude. One is to name a city and have the children find the latitude and longitude and the other is to give the latitude and longitude to name the city or physical feature. As soon as a child finds the answer he raises his hand, lessening confusion. The first to raise his hand is called upon for the answer. If correct a score is recorded for his team, if not the second is called upon.

In addition, the pupil may be required to give facts concerning the city, such as its principal industry, situation with reference to ocean, river, or lake, or historical importance.

At the close of the drill the scores are totalled to decide the winning team.

CYRIL L. STOUT

Graduate School,
University of Minnesota.

NOTE

Send descriptions of your interest-stimulating devices to the JOURNAL. We will be pleased to pass them on as an aid to others, thru the pages of the JOURNAL. There must be hundreds of teachers who have worked out these aids in teaching. Make your description brief, clear, and exact so that another teacher may follow your directions.

EDITOR

EDITORIAL NOTES AND NEWS

DR. GUY-HAROLD SMITH has been appointed Chairman of the Department of Geography in Ohio State University. DR. C. HUNTINGTON has retired as Chairman of the Department after having served the University for twenty-five years.

PROFESSOR R. H. WHITBECK of the University of Wisconsin is spending his vacation period in field study in Californa and Hawaii.

The Bureau of the Census has completed a set of outline maps, one for each state, showing the names and boundaries of the county political subdivisions. The corporate limits of the larger population centers of each township is also shown. The scale is about sixteen miles to the inch. The cost of each map is ten cents, available from the Superintendent of Documents, Washington, D.C.

The Florida State Council of Geography Teachers was organized last July with the following officers elected for the first biennium: President, Mrs. Anise D. Elkins, Tarpon Springs; Vice President, Miss Mary L. Bostick, Havana; Secretary-Treasurer, Mrs. C. P. Datson, Tallahassee; Corresponding Secretary, Mr. M. Luther King, Milton.

So effectively have American automobile manufacturers captured the Caribbean market, that one can travel days and never see any but an American made car. Moreover, American tourist dollars have often paid for these cars. Thus many a planter at the end of a tourist season has become a car owner by the following novel payment plan. A well-known American automobile agency delivers a car to a planter on condition he meet all incoming tourist steamers, prepared to take passengers on sightseeing trips on the island. The agency collects the tourist fares and the prospective owner gets perhaps $25 a day credited to his account. Thirty such days may finish the payment. The shopkeepers then reap their harvest from the tourists, aided by a local Board of Trade. Thus Curaçao has become the perfume mart of the West Indies because with practically no tax it can undersell Martinique, the logical dispenser of French wares, which has a high tax. Hundred dollar purchases are not uncommon. American dollars, too, helped build the new Hippodrome Restaurant in Caracas which can seat eight hundred people in one sitting, the number likely to motor there over the famous Mountain Motor Highway after debarking from a cruise ship at La Guayra. Panama merchants are equally alert to changing moods, so no longer is the Spanish shawl the chief attraction offered but, instead, the lure may be for something more in vogue, as pajamas, lounging robes and evening wraps from the Orient, together with costume jewelry from India which may have been an almost priceless heirloom, forced into the market by the depression.

Similarly, parts of the United States are aroused to new ways of stimulating tourist travel. Thus, in Wisconsin, trucks are barred from a number of highways during certain rush hours on week-ends and legal holidays, in order to facilitate tourist travel.

Another recognition of the value of tourist traffic is noted in Connecticut where the Storrs Agricultural Experiment Station has made a survey of the recreational uses of land in Connecticut. This report shows that one-eighth of the state's total land area is devoted to recreational use, whose assessed valuation, including the buildings thereon, is $200,000,000. Summer homes and lots occupy more than half of this land and have the highest valuation. Other outstanding uses with high valuation and extensive tracts are the lands used for golf courses, hunting and fishing clubs, while yacht and beach clubs use but little land but are high in valuation. The report urges careful regional planning with ample provision for future recreational needs.

GEOGRAPHICAL PUBLICATIONS

Dr. Karl Haushofer. **Japan und die Japaner: Eine Landes-und Volkskunde.** Second Edition. 240 pp. Maps, Illustrations and Tables. Leipzig and Berlin. B. G. Teubner. 1933.

This volume presents in its five parts a highly illuminating picture of many aspects of Japan and the Japanese.

Part I is introductory in character. The Island Empire is compared in form to a "dragon riding the sea": the East Asiatic Island Empire of the Northern Hemisphere, needing only the Philippines and Hawaii to be complete. The islands are united in central Honshu, from which center the Empire has developed as a strong skeleton now adding "flesh" in the process of transition from a homogeneous, self-sufficient Island State to an expanded industrial power.

Part II treats of man in Japan. Attention is directed to the origin of the Yamato race and the resultant racial characteristics, all thinly concealed under a veneer of good manners. Japan is one of the most definitely "man states" on earth. The lack of adaptability, the simplicity of living conditions, the oneness with nature, the changes which are occurring, the attempts to preserve the beautiful and the good of the past and other aspects of Japanese life are discussed in some detail. This section, tho only in small part geography, affords much of interest to the geographer.

Part III discusses the individual, the family and the State: the dominance of the group and the "suppression of the living by the dead." Tho change has occurred and is still occurring, the East is still the East. The peculiar position which renders Japan unassailable by land has led to emphasis on the navy in the scheme of national defense and to the establishment of far-flung "defense zones," presenting the appearance of dangerous aggression. Here lies the explanation of much of the alarmist literature.

Part IV, largely historical in character, describes the evolution of the State. Fortunate in locational relationships, and with unselfish political leadership, an ideal and unique political experiment has been carried out. The Island State has worked its painful way from a self-sufficient culture to a political structure able to carry the load of empire, tho the Empire has not reached that stage. This unified State is perhaps the strongest expression of reaction against Europeanization in the world today.

Part V deals largely with population and industry. It supplies a detailed account of population growth and the rise of the factory industry. This is followed by a discussion of the various other economic activities which serve as the basis for population support. The immediate advantages and the long-time disadvantages of expansion on the mainland are considered, especially the danger of occupation of an area with a stratum between the soil and the ruling group. The destiny of Japan is conceived to lie, not on the mainland but in the islands off its coast; Japan is believed to have its logical expansion to the South rather than to the west.

Such geography as is included has a distinctly historical and political complexion, despite the sub-title, and expressions of personal opinion, not necessarily substantiated by facts, are rather too common. Even an occasional error of fact creeps in such as the statement that there is no possibility for profitable rice production in Hokkaido whereas rice is actually the most important as well as profitable crop in the northern island. Despite such minor criticisms, the reviewer considers this one of the most stimulating of thought of the many publications on Japan. It has been written by one who was obviously a keen and critical observer of Japanese during his period of residence in Japan.

D. H. DAVIS

University of Minnesota

Edith Murial Poggi. **The Prairie Province of Illinois.** Illinois Studies in the Social Sciences, Vol. XIX, no. 3, 124 pp. Published as Univ. of Ill. Bull., Vol. XXXI, no. 42, June 18, 1934, Urbana, Ill. Price, paper $1.00.

The Prairie Province of Illinois is a thoro study bringing together a vast array of material garnered in large part from various state agencies, but enriched by the author's own field work. The study stands out more for its painstaking and intelligent selection of suggestive material than for its geographic interpretations. The style is simple, straightforward, lucid, with no attempts to lighten or enliven various parts. There are some forty maps and grafs, many of them from other state publications. A usable bibliography and a good index are added.

The bulletin, as its subtitle suggests, is "A study of human adjustment to the natural environment" for one of the seven geographic regions into which the author divides the state. After the opening chapter of eleven pages on the subdivision of the state into "geographic regions," there are five chapters, forty-nine pages, dealing with the physical setting; glaciation and its influence upon topography; surface water and ground water; soils; climatic elements in relation to corn production; natural vegetation. These chapters are characterized by considerable explanatory matter and definitions, presumably for the benefit of the lay reader. The next two chapters present, in the main, a record of the major human adjustments, agriculture and the mineral industries. The final chapter of twenty-one pages, entitled "Settlement and Development," is the major interpretative part.

The method of approach chosen by Miss Poggi has its advantages in ready reference, but there is lacking necessarily a certain degree of unity. A lack of geographic unity is made evident also in the naming of various "geographic regions": 1) dairy region, 2) Chicago region, 3) livestock region, 4) prairie province, 5) St. Louis region, 6) mixed-farming region, 7) Ozark region.

The Prairie Province does not include all of the original prairie lands of the state, but "is here used to signify approximately the area of Early Wisconsin glaciation in Illinois" with moraines acting as boundary limits. The selection of the name, Prairie Provinice, for the area was made on the basis that "the early historians speak of Illinois as the 'Prairie State' and of this particular area as 'The Grand Prairie'." The study, in the main, is not limited to the area covered by the Early Wisconsin glaciation for much use is made of material applying to the state as a whole. The bulletin is a valuable addition to the series and will be welcomed by all those who wish to know more of the geography of the state.

W. H. Haas

Northwestern University

W. C. Maclintock. **Prairie Settlement, the Geographical Setting.** Vol. 1 of Canadian Frontiers of Settlement. Toronto, 1934, 242 pp.

Appropriately, the first of this series of nine volumes is a regional geography of the some two million square miles which comprise Canada's frontier. The opening chapter "The Land and the People" identifies the region as a part of the North American plain whose five diverse sub-divisions are broadly unified by sub-humidity and rainfall variability. Climatic features are emphasized not only in the first chapter and in the ninth —"Climatic Variability"—but also here and there thruout the entire volume. The sub-divisions are not described until three topics: "Exploring the Agricultural Possibilities of the West," "Railways and Settlement," and "The Spread of Settlement," have been considered in Chapters 2, 3 and 4 respectively. "Exploring the Agricultural Possibilities of the West" proves to be an especially enlightening chapter. In it the reader learns that as early as the 1840's thoughtful individuals seriously considered the

possibilities of the region as a future scene of widespread rural settlement. Interesting are the sometimes conflicting views of these individuals and commissions, as, for example, in relation to the so-called "Palliser's Triangle," referred to by Palliser (1857) as a semi-arid desert wedged between which and the "strong forest" on the north was the "fertile belt." The remainder of the book is largely a consideration of the records of the past sixty years showing the extent to which these surveys and prognostications were correct.

Only a few of the outstanding features of the book can be mentioned here. One admires, for example, the skillful introduction of descriptive detail in the chapters on the sub-regions each one of which includes an extensive territory. Nevertheless, the reader reaches the end of each of these chapters on the sub-regions (the Red River Valley, the Park Belt, the Prairie Plains, the Forest Belt and the Peace River Valley) with the feeling that he has really become acquainted with the distinctive qualities which each region possesses. The usage of the term "Prairie Plains" to identify the region corresponding to our Great (or semi-arid) Plains is but another illustration of the discrepancies in regional terminology growing out of native nomenclature which, in the interests of logical thinking, must be corrected. The wealth of illustrative material is another characterstic of the volume. Especially of interest is the map series of railway accessibility drawn after the manner of Jefferson, also the map series on the spread of settlement and the numerous airplane views. The methodical treatment of the subject-matter amply indicates the author's intimate knowledge of the region and his ability to present that knowledge in a short, readable book. The style makes it acceptable to a large body of non-professional readers while geographers will welcome this addition to a rapidly growing bibliography of worth-while regional studies.

RALPH H. BROWN

University of Minnesota

E. H. Warmington. **Greek Geography.** J. M. Dent and Sons, London. 1934. 269 pages.

A vital phase of historical geography is the study of ancient maps and documents in order to determine the geographical knowledge possessed by different peoples at stated periods of time. For such information, geographers as a whole are dependent upon linguists and experts in the interpretation of the extant examples of ancient cartography. Clearly, if one is to discuss the geographical knowledge of a past age, one must accept the limits of the subject as known at that time rather than to apply the definition of a later period. These remarks indicate the character of this volume which is a compendium of Greek geographical knowledge of the ancient period. The four parts of the book are entitled as follows: Cosmology and older ideas in climatology; Climatology and political geography; Exploration and growth of geographical knowledge, including descriptive and topographic geography; and Mathematical geography with cartography. The book opens with a twenty-page introduction which explains the scope of the book and its relation to the "Greek Library" of which it is but one volume. Among other things the author concludes that "the achievements of ancient Greek explorations were greater than ancient literature records or implies." In each of the four parts referred to the author has included excerpts from the writings of ancient geographers or philosophers who did geographic work. It is amusing and instructive, in reading these excerpts, to learn that the ancients like the moderns found much fault with the beliefs of their contemporaries. Being a compendium, the book does not provide easy reading, but it is, nevertheless, a veritable mine of information.

RALPH H. BROWN

University of Minnesota

The JOURNAL *of* GEOGRAPHY

CONTENTS FOR DECEMBER, 1934

The St. Lawrence Lowland: Industrial Heart of Canada. By J. Russell Whitaker 329

Dr. Whitaker is an assistant professor of geography, University of Wisconsin, and is particularly interested in various phases of the geography of Canada. He is a frequent contributor to the JOURNAL and other periodicals.

What Oil Did to Curaçao. By Elizabeth U. Dunbar 340

Miss Dunbar is an instructor in geography in West High School, Rochester, New York, and author of "Some Phases of Secondary School Geography in New York State," which appeared in the JOURNAL, October, 1922.

A Teacher Self-Analysis Sheet in Elementary Geography. By J. R. Shannon 346

Mr. Shannon is a professor of education, Indiana State Teachers College, at Terre Haute. As an undergraduate he majored in geography and geology and has maintained an interest in these fields. His graduate work was done in the field of education in which he has attained his greatest achievement. His contributions to education have appeared in a dozen or more educational journals.

Geography Lessons in Snow. By Ruben L. Parson 354

Mr. Parson is a graduate of the State Teachers College, Moorhead, Minnesota, and during the past year was a Fellow in Geography, Clark University.

The Teacher-Training Problem in Geography. By Anne M. Goebel 357

Miss Goebels is a teacher of geography, State Teachers College, Emporia, Kansas. Among her recent contributions to geographic education are, "What is Geography," *Kansas Teacher,* April, 1933; "The Use of Pictures in the Teaching of Geography" and "Some Techniques in Map Study," *School Science and Mathematics,* April and May, 1933; and "A Geographic Personality," *The Virginia Teacher,* March, 1934.

When 1934 Began. By E. H. Webster 362

Mr. Webster is emeritus professor of science, Atlanta University. He was connected with the University for forty-two years, first as principal of the normal department and later as head of the department of science. To the October, 1932, *Bulletin of the Geographical Society of Philadelphia,* he contributed an article on the "Tides of the Gulf of Mexico and the Caribbean Sea."

Annual Meeting, National Council of Geography Teachers 365

Editorial Notes and News 367

Geographical Publications 368

Contents of the JOURNAL are indexed regularly in the *Educational Index to Periodicals*

Authors alone are responsible for opinions and statements in the JOURNAL.

Whitbeck's Industrial Geography

Production—Manufacture—Commerce

By RAY HUGHES WHITBECK, *Professor of Geography, University of Wisconsin*
608 pages, with maps, diagrams, charts, and illustrations. *List price*, $1.72

THE CONTENT OF THIS BOOK is distinctly social in its approach. There is a refreshing absence of statistical and "encyclopediac" facts. The emphasis is on causes, principles, trends, and matters of international significance.

ITS EASY, NARRATIVE style, its variety of exercises, its use of the unit plan of teaching and the problem method are features enthusiastically praised by teachers.

Lathrop's Laboratory Manual in Industrial Geography

List price 60 cents

MAKES CONSTANT REFERENCE to all the standard textbooks on industrial geography but is especially planned to accompany *Whitbeck's Industrial Geography*. The material included has had seven years of successful classroom use. Thoroughly practical. Follows the Unit-Contract plan.

AMERICAN BOOK COMPANY

New York Cincinnati Chicago Boston Atlanta San Francisco

Since 1893

THE JOURNAL OF GEOLOGY

has provided a constant and developing record of the advance of geological science. Founded by Thomas Crowder Chamberlin, America's outstanding geologist, since 1928 it has been edited by Rollin T. Chamberlin of the University of Chicago.

Among forthcoming articles are:

Structure and Creep. By NOEL H. STEARN
Devonian Ice in Pennsylvania. By BRADFORD WILLARD
The "Clinton" in Western New York. By J. T. SANFORD
Gravity Survey at Crosbyton, Texas. By ALBERT J. HOSKINSON
Mineralogical Classification of Igneous Rocks. By S. J. SHAND
Ventifact Localities in the United States. By C. K. WENTWORTH and R. I. DICKEY
Stratigraphic Zones in the Negaunee Iron-Formation of Marquette County, Michigan. By J. L. ADLER
Relations of Anorthosite to Granite. By FRANK F. GROUT and W. W. LONGLEY

Published 8 times a year. Subscription, $6.00
Foreign postage, 65 cents. Canadian postage, 25 cents.

THE UNIVERSITY OF CHICAGO PRESS